

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently Amended) A method for increasing channel diversity in a mobile communications device, the method comprising:

generating control signals to configure ~~the~~ a base transceiver station to transmit selected data streams to a corresponding ~~subscriber unit~~ mobile communications device on an assigned channel of a multiple access protocol; and

receiving one or more select data stream(s) associated with a communication channel from a ~~remote~~ transmitter at the mobile communication device through a plurality (N) of electric dipole antennae and a plurality (M) of magnetic dipole antennae, each of said antennae characterized by a distinct polarization with respect to another, said electric dipole antennae and magnetic dipole antennae co-located in a common antennae structure at the mobile communications device to provide at least N+M uncorrelated spatial streams of channel diversity of the received communication channel to a receiver within the mobile communications device.

2. (Original) The method of claim 1 wherein each electric dipole antennae has a different polarization.

3. (Original) The method of claim 1 wherein each magnetic dipole antenna has a different polarization.
4. (Original) The method of claim 1 wherein the electric dipole antennae comprise 3 electric dipole antennae and the magnetic dipole antennae comprise 3 magnetic dipole antennae.
5. (Original) The method of claim 4 wherein the 3 electric dipole antennae have 3 different polarizations and the 3 magnetic dipole antennae have 3 different polarizations.
6. (Original) The method of claim 4 wherein the data streams are transmitted via a scattering channel.
7. (Currently Amended) The method of claim 1 wherein the ~~subscriber unit~~ mobile communications device comprises a palm sized device.
8. (Original) The method of claim 7 wherein the electric dipole antennae comprise 3 electric dipole antennae and the magnetic dipole antennae comprise 3 magnetic dipole antennae.
9. (Original) The method of claim 8 wherein the 3 electric dipole antennae have 3 different polarizations and the 3 magnetic dipole antennae have 3 different polarizations.

10. (Original) The method of claim 9 wherein the data streams are transmitted via a scattering channel.

11. (Currently Amended) A method for transmitting data from a mobile communications device, the method comprising:

transmitting data streams on an assigned channel of a multiple access protocol via selected ones of a plurality (N) of electric dipole antennae and a plurality (M) of magnetic dipole antennae co-located at the mobile communication device as a single antenna structure, each antenna characterized by a distinct polarization with respect to any other antennae within the single antennae structure to generate at least $N + M$ uncorrelated spatial streams of channel diversity from the single antenna structure; and

generating control signals to configure ~~the~~ a base transceiver station to receive ~~the~~ selected data streams from the ~~subscriber unit~~ mobile communications device on the assigned channel of a multiple access protocol.

12. (Withdrawn) The method of claim 1 wherein each electric dipole antennae has a different polarization.

13. (Previously Presented) The method of claim 11 wherein the electric dipole antennae comprise 3 electric dipole antennae.

14. (Original) The method of claim 13 wherein the 3 electric dipole antennae have 3 different polarizations.

15. (Original) The method of claim 14 wherein the data streams are transmitted via a scattering channel.
16. (Previously Presented) The method of claim 11 wherein the mobile communications device comprises a palm sized device.
17. (Withdrawn) The method of claim 16 wherein the electric dipole antennae comprise 3 electric dipole antennae.
18. (Withdrawn) The method of claim 17 wherein the 3 electric dipole antennae have 3 different polarizations.
19. (Withdrawn) The method of claim 18 wherein the data streams are transmitted via a scattering channel.
20. (Currently Amended) A mobile communications device comprising:
means for generating control signals to configure ~~the~~ a base transceiver station to transmit selected data streams to a corresponding ~~subscriber unit~~ mobile communications device on an assigned channel of a multiple access protocol;
a transmitter, to prepare data for transmission; and
a plurality (N) of electric dipole antennae and a plurality (M) of magnetic dipole antennae co-located at the mobile communications device as a single antennae structure,

responsive to the transmitter to effect transmission of the data through a wireless communication channel to a ~~remote~~ receiver, wherein each of the antennae has a distinct polarization with respect to any other antennae of the structure to generate at least $N+M$ uncorrelated spatial streams composing the wireless communication channel.

21. (Withdrawn) The system of claim 20 wherein each electric dipole antennae has a different polarization.

22. (Withdrawn) The system of claim 20 wherein each magnetic dipole antennae has a different polarization.

23. (Previously Presented) The device of claim 20 wherein the electric dipole antennae comprise 3 electric dipole antennae and the magnetic dipole antennae comprise 3 magnetic dipole antennae.

24. (Previously Presented) The device of claim 23 wherein the 3 electric dipole antennae have 3 different polarizations and the 3 magnetic dipole antennae have 3 different polarizations.

25. (Previously Presented) The device of claim 24 wherein the data streams are transmitted via a scattering channel.

26. (Previously Presented) The device of claim 20 wherein the device comprises a palm sized device.

27. (Previously Presented) The device of claim 26 wherein the electric dipole antennae comprise 3 electric dipole antennae and the magnetic dipole antennae comprise 3 magnetic dipole antennae.

28. (Previously Presented) The device of claim 27 wherein the 3 electric dipole antennae have 3 different polarizations and the 3 magnetic dipole antennae have 3 different polarizations.

29. (Previously Presented) The device of claim 28 wherein the data streams are transmitted via a scattering channel.

30. (Currently Amended) A mobile communications device comprising:
a plurality (N) of electric dipole antennae and a plurality (M) of magnetic dipole antennae, co-located at the mobile communications device as a single antenna structure, responsive to a wireless communication channel wherein each of the plurality of antennae have a different polarization with respect to any other antennae within the single antennae structure to produce at least N+M uncorrelated spatial streams from the received wireless communication channel;

means for generating control signals to configure ~~the~~ a base transceiver station to receive ~~the~~ selected data streams from the ~~subscriber unit~~ mobile communications device on the assigned channel of a multiple access protocol; and

a receiver, selectively responsive to at least a subset of the plurality of antennae, to process the N+M uncorrelated spatial streams to recover data transmitted therethrough.

31. (Withdrawn) The system of claim 30 wherein each electric dipole antennae has a different polarization.

32. (Withdrawn) The system of claim 30 wherein the electric dipole antennae comprise 3 electric dipole antennae.

33. (Previously Presented) The device of claim 30 wherein 3 electric dipole antennae have 3 different polarizations, and 3 magnetic dipole antennae have 3 different polarizations.

34. (Previously Presented) The device of claim 33 wherein the data streams are transmitted via a scattering channel.

35. (Previously Presented) Wherein the device of claim 30 comprise a palm sized device.

36. (Withdrawn) The system of claim 35 wherein the electric dipole antennae comprise 3 electric dipole antennae.
37. (Withdrawn) The system of claim 36 wherein the 3 electric dipole antennae have 3 different polarizations.
38. (Withdrawn) The system of claim 37 wherein the data streams are transmitted via a scattering channel.
39. (Currently Amended) A method comprising:
- generating control signals to configure ~~the~~ a base transceiver station to transmit selected data streams to a corresponding ~~subscriber unit~~ mobile communications device on an assigned channel of a multiple access protocol, wherein the assigned channel comprises a scattering channel; and
- receiving a wireless communication channel at ~~a~~ the mobile communications device utilizing six (6) co-located antennae at the mobile communications device, wherein the 6 co-located antennae comprise 3 electric dipole antennae and 3 magnetic dipole antennae disposed on a single antennae structure, each antenna characterized by a distinct polarization with respect to any other antennae within the single antennae structure to generate 6 uncorrelated spatial streams from the received wireless communication channel.

40. (Withdrawn) A method for wirelessly receiving data at a base transceiver station from a subscriber unit, the base transceiver station comprising a plurality of antennae, the method comprising:

utilizing 3 co-located antennae at the subscriber unit to transmit selected data streams on an assigned channel of a multiple access protocol, wherein the assigned channel comprises a scattering channel, wherein the subscriber unit comprises a palm-sized device and the 3 co-located antennae comprise 3 electric dipole antennae, wherein the 3 electric dipole antennae have 3 different polarizations;

generating control signals to configure the base transceiver station to receive the selected data streams from the subscriber unit on the assigned channel of a multiple access protocol; and

receiving in response to the control signals the selected data streams on the assigned channel of the multiple access protocol.

41. (Withdrawn) A system for wirelessly transmitting data between a base transceiver station and a subscriber unit, the base transceiver station comprising a plurality of transmit antennae, the system comprising:

means for generating control signals to configure the base transceiver station to transmit selected data streams to a corresponding subscriber unit on an assigned channel of a multiple access protocol, wherein the assigned channel comprises a scattering channel;

means for transmitting in response to the control signals and in a spatially separate fashion, the selected data streams on the assigned channel of the multiple access protocol; and

means for utilizing 6 co-located antennae at the subscriber unit to receive the selected data streams wherein the subscriber unit comprises a palm-sized device and the 6 co-located antennae comprise 3 electric dipole antennae and 3 magnetic dipole antennae wherein the 3 electric dipole antennae have 3 different polarizations and the 3 magnetic dipole antennae have 3 different polarizations.

42. (Withdrawn) A system for wirelessly receiving data at a base transceiver station from a subscriber unit, the base transceiver station comprising a plurality of antennae, the system comprising:

means for utilizing 3 co-located antennae at the subscriber unit to transmit selected data streams on an assigned channel of a multiple access protocol, wherein the assigned channel comprises a scattering channel, wherein the subscriber unit comprises a palm-sized device and the 3 co-located antennae comprise 3 electric dipole antennae, wherein the 3 electric dipole antennae have 3 different polarizations; and

means for generating control signals to configure the base transceiver station to receive the selected data streams from the subscriber unit on the assigned channel of a multiple access protocol; and

and means for receiving in response to the control signals the selected data streams on the assigned channel of the multiple access protocol.

43. (Withdrawn) An apparatus comprising:

a receiver, to demodulate signals received via one or more wireless communication channels via an antenna structure; and

an antennae structure, couple with the receiver, to receive on or more wireless communication channels transmitted from a remote apparatus, the antennae structure including a plurality of electric dipole antennae and a plurality of magnetic dipole antenna, said electric dipole antennae and magnetic dipole antennae organized to form a single antenna structure.

44. (Withdrawn) An apparatus according to claim 43, the antennae structure comprising three electric dipole antennae and three magnetic dipole antennae, wherein each of the electric dipole antennae have different polarizations from one another and each of the magnetic dipole antennae have different polarizations from one another, all commonly configured within the single antenna structure.

45. (Withdrawn) Ana apparatus according to claim 43, further comprising a portable energy source, coupled to the receiver, to provide power to enable the receiver to operate.